NIP-155-02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Accompanying Divisional Application Under
37 CFR 1.53(b):

| | |
|---|---|
| Prior Application: | M. NAGASE et al<br>Serial No. 09/405,217<br>Filed: September 27, 1999 |
| Group Art Unit: | 1754 |
| Examiner: | E. Nave |
| For: | METHOD OF CHEMICAL DECONTAMINATION AND SYSTEM THEREFOR |



**PRELIMINARY AMENDMENT**

Assistant Commissioner of Patents
Washington, D.C. 20231

December 4, 2001

Sir:

Prior to examination, please amend the above application as follows.

**IN THE SPECIFICATION**

Page 1, before the first line, add the paragraph:

This is a divisional application of U.S. Serial No. 09/405,217 filed September 27, 1999, now allowed.

Pages 22 and 23, the paragraph bridging these pages from page 22, line 22, to page 23, line 4, replace the bridging paragraph with:

An advantage of the system configuration shown in Embodiment 3 is that the concentration of radioactivity in the water flowing to the catalyst decomposition column 6 is low because the water flows into the catalyst decomposition column 6 after flowing through the cation resin column 7, and consequently accumulation of radioactivity in the catalyst decomposition column 6 can be substantially suppressed. Further, it is unnecessary to decompose hydrazine by the catalyst decomposition column 6 until hydrazine breaks through the cation resin column 7.

**IN THE CLAIMS**

Cancel claims 1-14 without prejudice or disclaimer, and add new claims 15-24, as follows:

15. (New) A chemical decontamination apparatus arranged in a circulation line connected to a portion to be decontaminated for chemically decontaminating radioactive nuclides from the portion contaminated by the radioactive nuclides, the apparatus comprising:

agent injectors for injecting oxalic acid and hydrazine as a reductive decontaminating agent into the portion through the circulation line for reductively decontaminating the radioactive nuclides from the portion; and

a catalyst decomposition column arranged in the circulation line for decomposing at least the oxalic acid and the hydrazine in the reductive decontaminating agent.

16. (New) A chemical decontamination apparatus as claimed in claim 15, wherein said catalyst decomposition column is arranged downstream of an ion exchange resin column in the circulation line.

17. (New) A chemical decontamination apparatus as claimed in claim 16, further comprising the ion exchange resin column in the circulation line.

18. (New) A chemical decontamination apparatus as claimed in claim 16, wherein an $H_2O_2$ injector is arranged downstream of said ion exchange resin column and upstream of said catalyst decomposition column in the circulation line.

19. (New) A chemical decontamination apparatus as claimed in claim 16, wherein a pH monitor is arranged downstream of said agent injectors and upstream of said ion exchange resin column.

20. (New) A chemical decontamination apparatus as claimed in claim 19, wherein said pH monitor is arranged downstream of said portion to be decontaminated.

21. (New) A chemical decontamination apparatus as claimed in claim 16, wherein a pH monitor is arranged downstream of said ion exchange resin column and upstream of said agent injectors.

22. (New) A chemical decontamination apparatus as claimed in claim 15, further comprising a bypass line for bypassing said catalyst decomposition column.

23. (New) A chemical decontamination apparatus as claimed in claim 15, further comprising a heater for heating treating water installed in said circulation line.

24. (New) A chemical decontamination apparatus arranged in a circulation line connected to a portion to be decontaminated for chemically decontaminating radioactive nuclides from the portion contaminated by the radioactive nuclides, the apparatus comprising:

agent tanks for injecting oxalic acid and hydrazine as a reductive decontaminating agent into the portion through the

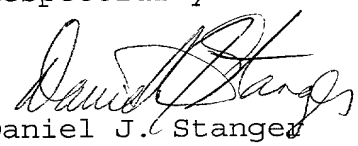
circulation line for reductively decontaminating the radioactive nuclides from the portion; and

a catalyst decomposition column arranged in the circulation line for decomposing at least the oxalic acid and the hydrazine in the reductive decontaminating agent.

**REMARKS**

The Applicants request entry of the foregoing amendments and new claims.

Respectfully submitted,



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Date: December 4, 2001

**MARKED UP VERSION OF REPLACED PARAGRAPH(S) OF THE SPECIFICATION**

Pages 22 and 23, the paragraph bridging these pages from page 22, line 22, to page 23, line 4, the marked up paragraph is as follows:

An advantage of the system configuration shown in Embodiment 3 is that the concentration of radioactivity in the water flowing to the catalyst decomposition column 6 is low because the water flows into the [resin column] catalyst decomposition column 6 after flowing through the cation resin column 7, and consequently accumulation of radioactivity in the catalyst decomposition column 6 can be substantially suppressed. Further, it is unnecessary to decompose hydrazine by the catalyst decomposition column 6 until hydrazine breaks through the cation resin column 7.